

C L A I M S

1. A control unit for controlling the delivery of a combustible gas in a valve unit (2) of the type comprising valve means (4) for shutting off the gas which are subject to the operational control of a magnetic safety unit (5) with thermocouple (10), the control unit comprising an electronic circuit assembly (12) arranged for connection to sensor means (13) adapted to detect the presence of inflammable vapours or other dangerous substances, said circuit assembly (12) being supplied by electric power generating means, the circuit assembly (12) comprising an electronic type switch (14) acting on the electric circuit (11) for supplying the magnetic unit (5) so as to interrupt said circuit and operate said valve means (4) for closure in the presence of inflammable vapours detected by said sensor means (13).

2. A control unit according to claim 1, wherein said electric power generating means comprise thermopile means (12a) supplied by the flame of a pilot burner (7) associated with said valve unit (2).

3. A control unit according to claim 1, wherein said electric power generating means are of the type with battery (15) and the circuit assembly (12) is arranged to be electrically supplied exclusively by said generating means with battery (15).

4. A control unit according to one of claims 1 to 3, wherein said sensor means (13) comprise transducer means adapted to transform the signal indicating the presence of inflammable vapours into an electrical magnitude sent to the circuit assembly, said circuit assembly (12) comprising comparison means for comparing the value of such a magnitude with a preset threshold value and consequently sending an operating signal (S) for opening said electronic switch (14), whenever the value of said magnitude is above the threshold value set.

5. A control unit according to claim 4, wherein said magnitude is an ohmic resistance (R).

6. A control unit according to claim 2, wherein the resistive part of the electronic circuit assembly (12) is electrically supplied by said thermocouple (10).

7. A control unit according to one or more of the preceding claims, wherein said electronic switch (14) is of the low resistance type and is connected

in series with the thermocouple (10) and the magnetic unit (5) in said circuit (11) for supplying same.

8. A control unit according to one or more of the preceding claims, wherein said electronic switch (14) is of the type with MOSFET transistor.

5 9. A control unit according to one or more of the preceding claims, further comprising electric power generating means with battery (15) which are arranged for electrically supplying the circuit assembly (12), limitedly in a phase of ignition of the pilot burner (7) and until the power produced by the thermopile generating means (12a) is sufficient to supply the electronic circuit assembly
10 (12).

10. A control unit according to one or more of the preceding claims, wherein said generating means with battery (15) are electrically connected to an igniter device (16) for lighting the flame of the pilot burner (7) to provide sufficient power to said device (16) in the flame ignition phase.

15 11. A control unit according to claim 10, wherein said igniter device (16) is controlled by said circuit assembly (12) to be disabled in the presence of inflammable vapours detected by said sensor means (13).

20 12. A control unit according to one or more of claims 1 to 9, wherein an igniter device (16) for lighting the flame at the pilot burner (7) is provided, operated independently of the circuit assembly (12).

13. A control unit according to claim 12, wherein said igniter device (16) is of the piezoelectric type.

25 14. A valve unit for the delivery of a combustible gas, particularly in water heating apparatuses, comprising a control unit (1) for controlling the delivery of the gas according to one or more of the preceding claims.